Draft of March 10, 2013

To: Delta Stewardship Council

From: Delta Independent Science Board

Subject: DISB Review of BDCP Chapter 7, administrative draft of December 12, 2012

SUMMARY

The Delta Independent Science Board recommends the nascent Delta Science Plan as the platform for science, monitoring, and adaptive management under the Bay Delta Conservation Plan.

Science, monitoring, and adaptive management for BDCP need an independent platform from which to serve the public interest in the State's waters and ecological heritage. Mere coordination with other Delta science programs will not be enough for BDCP science to rise above the fray of stakeholder interests.

The Board encourages BDCP to work closely with the Delta Science Program toward DSP's goal of "One Delta, One Science" and encourages the Delta Stewardship Council to help facilitate this outcome.

BACKGROUND

The Board previously (June 12, 2012) stated that a stand-alone research and monitoring program within BDCP "would be inefficient, detrimental to existing programs, and lacking in the independence needed to build trust in adaptive management." The relevant parts of that memo are provided in Appendix A.

The current review of Chapter 7 was prompted by a request on January 16, 2013, from Phil Isenberg, Chair of the Delta Stewardship Council.

The Board's views are supported by findings of the 2012 National Research Council report, "Sustainable Water and Environmental Management in the California Bay-Delta". That report identified scientific synthesis and consensus as essential to addressing challenges inherent in the adaptive management of Delta water and ecosystems. Supporting arguments for improving the connections between science and policy were made in Chapter 8 of "The State of Bay-Delta Science, 2008" issued by the CALFED Science Program in 2008. The Board also notes that Interior Secretary Salazar, in his joint appearance with Governor Brown on July 25, 2012, vowed that science would guide BDCP.

MAIN FINDING

The administrative structure proposed in Chapter 7 is likely to further fragment Delta science and decision-making. The proposed structure tends toward silo science over the common pursuit, critical thinking, and integration of understanding needed to address the complex and urgent task of implementing the coequal goals for the Delta.

The Board recognizes that BDCP alone cannot undo the current fragmentation of Delta science that has evolved through the practice of many entities. The Board also acknowledges that integration may appear to be contrary to the short-term interests of each stakeholder acting individually. The Board understands how BDCP planners may want to disentangle BDCP from other extremely difficult, long-standing, problems of managing the Delta. Given these forces for fragmentation, the Board applauds the collaborative science efforts underway and BDCP's participation to date in the development of a Delta Science Plan.

However, the Board expects that an additional, separate, and effectively sovereign science and management program for BDCP will not yield sustainable improvements in water reliability while also meeting the related habitat-restoration objectives. Delta diversion infrastructure, operations, and affiliated habitat actions are too integrated with numerous other Delta issues to be managed separately.

ELABORATION

1. Integrate BDCP's implementation structure with the Delta Science Plan

The need for integrated science for the Delta was a major conclusion of the 2012 National Research Council report, "Sustainable Water and Environmental Management in the California Bay-Delta." The Delta Plan requires the Delta Science Program to propose an integrated Delta Science Plan by the end of 2013. While the structure of this science plan is still under development, the Board fully expects the science plan to require leadership by the Delta Stewardship Council, integration of other state and federal Delta science activities, potential additional state legislation, and new pacts between state and federal agencies.

The Board encourages the BDCP to participate in integrating its scientific efforts with others in the framework of a Delta Stewardship Council Delta Science Plan and in building the BDCP implementation structure clearly within the overall DSC Delta Plan and Delta Science Plan. Such integration will contribute toward the assurance that BDCP will meet its own environmental goals.

2. Structure science and monitoring for independence

BDCP's organization and scientific activities should follow through on its promise of independent science. The existing Chapter 7 states that science in support of BDCP will be undertaken in a manner that ensures independence (p. 7-4, lines 28-33). Yet the Chapter also states that the Science Manager will be chosen by and report to a Program Manager, who in turn is chosen by and reports to the Authorized Entities Group. How will this chain

of command produce independent scientific advice?

Science and monitoring for BDCP needs more independence from BDCP. BDCP's science efforts could gain independence through integration with the Delta Science Plan, with BDCP management engaging a separate Science Advisor instead of a Science Manager. Alternatively, the BDCP Science Program Manager could be chosen by and ultimately be responsible to an independent scientific body, although this would imply less integration of Delta science activities.

3. Rethink the Adaptive Management Team

Acknowledging that the role of science in adaptive management will be addressed in a new draft of Chapter 3, the Board finds that the Adaptive Management Team, operating under the proposed guidelines in draft Chapter 7, is unlikely to ensure that science is adequately incorporated into management decisions.

The draft states that the Adaptive Management Team (AMT) will consist mostly of agency scientists. Such members will tend to have split loyalties, in part to their agencies and in part to the quality of science.

The draft further states that the AMT will operate by consensus (unanimity) and that when consensus cannot be reached, decision authority moves to the Authorized Entity Group (AEG) and the Permit Oversight Group (POG). However, complex scientific issues rarely lead scientists to the same management conclusion. Scientific disagreement contains information -- scientific uncertainty -- that should be to be factored into management decisions. Spit loyalties in AMT will compound this problem.

It can be expected that the AEG and POG may need to delegate authority to the Program Manager when management decisions need to be made quickly. The draft does not appear to require that science guide such decisions, in contrast with Governor Brown's and Secretary Salazar's commitment.

4. Differentiate and elaborate the science-management interfaces given the kinds of decisions that BDCP will make

Chapter 7 needs to state more clearly how different types of water and habitat decisions, and their scientific support, will be orchestrated. The science-management interfaces are likely to differ for decisions involving different time periods, different portions of the Delta, and different water and ecological issues.

Decadal plans for habitat restoration, for instance, require a different management than daily water-export decisions. The issues of monitoring the Delta ecosystem differ from monitoring performance compliance at specific restoration sites. Some adaptive management decisions might need to be made on a weekly basis, others annually, some for the Delta as a whole, some for particular restoration sites. The Board recommends greater clarity on how these different roles of science and management for BDCP will be addressed and coordinated with other Delta science and management processes. The annual

operating plan presented in Chapter 7 seems to be a promising approach in this regard, particularly if it or its context is broadened to include other annual implementation and operating decisions for the Delta.

The board acknowledges that some of these issues with respect to the role of science might be better addressed in Chapter 3, but if so the connections to Chapter 3 need to be explicitly made in Chapter 7.

5. Define the roles of science more clearly

The next draft of Chapter 7 could be improved by providing a section that spells out more definitively how science will guide the implementation of BDCP. Such a section would bring together material that currently seems scattered and incomplete.

The clarifications should extend to the Science Manager's functions and qualifications. According to the current draft, she or he will chair the Adaptive Management Team and variously "coordinate," "engage," "support," and "assist" (p. 7-4). The list of qualifications for the Science Manager should ensure a current and deep understanding of science.

Participation by scientists could be clarified and strengthened elsewhere in the implementation structure. Per the current draft, the Stakeholder Group will include at least three scientists with expertise in management (not necessarily actual science), but this Group's function is only to "provide input to the Program Manager concerning the current significant issues at hand" rather than to be a central part of planning and implementation of BDCP actions.

Appendix A. Key Portion of June 12, 2012 DISB Memo

The board stated its concern with respect to the role of science in a memo of June 12, 2012, to Jerry Meral and Dale Hoffman-Floerke, based on the February 29, 2012 administrative draft of BDCP Chapters 3 and 7. The board wrote then that:

> The BDCP process provides an unprecedented opportunity for building collaboration, consensus, and trust in Delta science. We encourage principals in BDCP to work toward these outcomes by improving on the draft Plan's evolving structure for scientific monitoring and research.
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> BDCP entails vast amounts of new research and monitoring in the Delta. How these efforts would be managed is outlined in chapters 3 and 7 of the draft Plan. The draft highlights the capabilities of two existing Delta science programs – the Interagency Ecological Program (IEP) and the Delta Science Program (DSP). But the draft goes on to imply that most of the new research and monitoring would be done by a new BDCP science program "in coordination" with existing Delta science efforts (chapter excerpts are attached below).
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> We advise against this stand-alone approach. Coordination is not enough to build scientific consensus for integrated action. A new parallel research and monitoring

program would be inefficient, detrimental to existing programs, and lacking in the independence needed to build trust in adaptive management under BDCP.

We previously voiced these concerns on May 3, 2012, when we met with two BDCP representatives, Chris Earle of ICF International and Laura King Moon of the Department of Water Resources. They told us that the final structure of the research and monitoring plan remained undecided.

That structure will be fundamental to the conservation measures for habitats and natural communities under BDCP. Delta science needs coordinated institutional foresight, collaboration in research and monitoring, integration of the findings, consensus on implementation, and public trust in this process and its practitioners. Human behavior and organization will be key to building scientific and public understanding, as well as support, for adaptive management in the Delta.

The recent National Research Council report identifies scientific synthesis and consensus as essential to addressing challenges inherent in the adaptive management of Delta water and ecosystems (http://www.nap.edu/catalog.php?record_id=13394). We encourage BDCP to strengthen Delta science as a truly integrated enterprise.

This recommendation dovetails with an ongoing concern about the state of Delta science. Writing to the Delta Stewardship Council on March 14, 2012, we reported that "Delta science programs, particularly those in state agencies, have difficulty retaining their best scientists, hiring new scientists, and providing support for science." We noted that state agencies increasingly rely on science and engineering consultants, instead of expertise in-house. We advised helping state agencies rebuild the scientific capacity and institutional memory they need to develop and apply best available science for adaptive management. Such rebuilding could become a lasting and positive effect of a BDCP process that integrates with the future Delta Science Plan that we expect will be prepared as a part of the Delta Plan.